

*11412 V. RECORDING
(Board 10757)*

STONINGTON HARBOR

MAINE

SURVEY

(REVIEW OF REPORTS)



U.S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
BOSTON, MASS.

JULY 31, 1957

27

SURVEY

REVIEW OF REPORTS

STONINGTON HARBOR, MAINE

SYLLABUS

The Division Engineer finds that prospective benefits to small craft are sufficient to warrant a Federal navigation project for improvement of Stonington Harbor, Maine. He recommends that a project be authorized to provide three anchorage areas: 4 acres 6 feet deep in Allen Cove, 5 acres 6 feet deep east of Greens Head, and 2 acres 8 feet deep west of Staple Point. The estimated Federal cost of the project is \$220,000 (April 1957), with \$2,500 annually for maintenance. This recommendation is made subject to the condition that local interests hold and save the United States free from damages, furnish all necessary lands, easements and rights-of-way, and construct two public landings with adequate berths. The costs to local interests are estimated at \$14,000 for the public landings and \$10,000 for expected dredging alongside private docks. The improvement, which will benefit commercial fishing navigation, has a benefit-cost ratio of 1.5.

R 10/57

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U. S. ARMY ENGINEER DIVISION, NEW ENGLAND
CORPS OF ENGINEERS
150 Causeway Street
Boston 14, Mass.

31 July 1957

NEDGW

SUBJECT: Survey (Review of Reports) of Stonington Harbor, Maine

TO: Chief of Engineers, Department of the Army,
Washington 25, D. C.

AUTHORITY

1. This report of survey of Stonington Harbor, Maine is submitted in compliance with a resolution adopted July 13, 1949 by the Committee on Public Works of the United States House of Representatives which reads as follows:

"RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE HOUSE OF REPRESENTATIVES, UNITED STATES, that the Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on Stonington Harbor, Maine, submitted on January 22, 1937 with a view to determining whether the recommendations contained therein should be modified in any way at this time."

2. Based on this resolution a favorable preliminary examination report was submitted by the Division Engineer on December 28, 1955 and reviewed by the Chief of Engineers and the Board of Engineers for Rivers and Harbors.

3. A second resolution was adopted June 27, 1956 by the Committee on Public Works of the United States House of Representatives which reads in part as follows:

"WHEREAS, the Chief of Engineers has completed a preliminary examination pursuant to a resolution adopted by the Committee on Public Works, House of Representatives, U. S., on July 13, 1949, requesting a review of reports on Stonington Harbor, Maine, submitted on January 22, 1937, with a view to determining whether the recommendations contained therein should be modified in any way at this time; and whereas, the Chief of Engineers, after a favorable finding of the Board of Engineers for Rivers and Harbors, has recommended by letter, dated February 20, 1956, directed to the Chairman of the Committee on Public Works, that a survey be made:

NOW THEREFORE, BE IT RESOLVED BY THE COMMITTEE ON PUBLIC WORKS, HOUSE OF REPRESENTATIVES, U. S., that the Board of Engineers for Rivers and Harbors be and hereby is, authorized to proceed with the preparation of a survey report thereon."

4. A study of survey scope was directed by the Chief of Engineers on July 31, 1956.

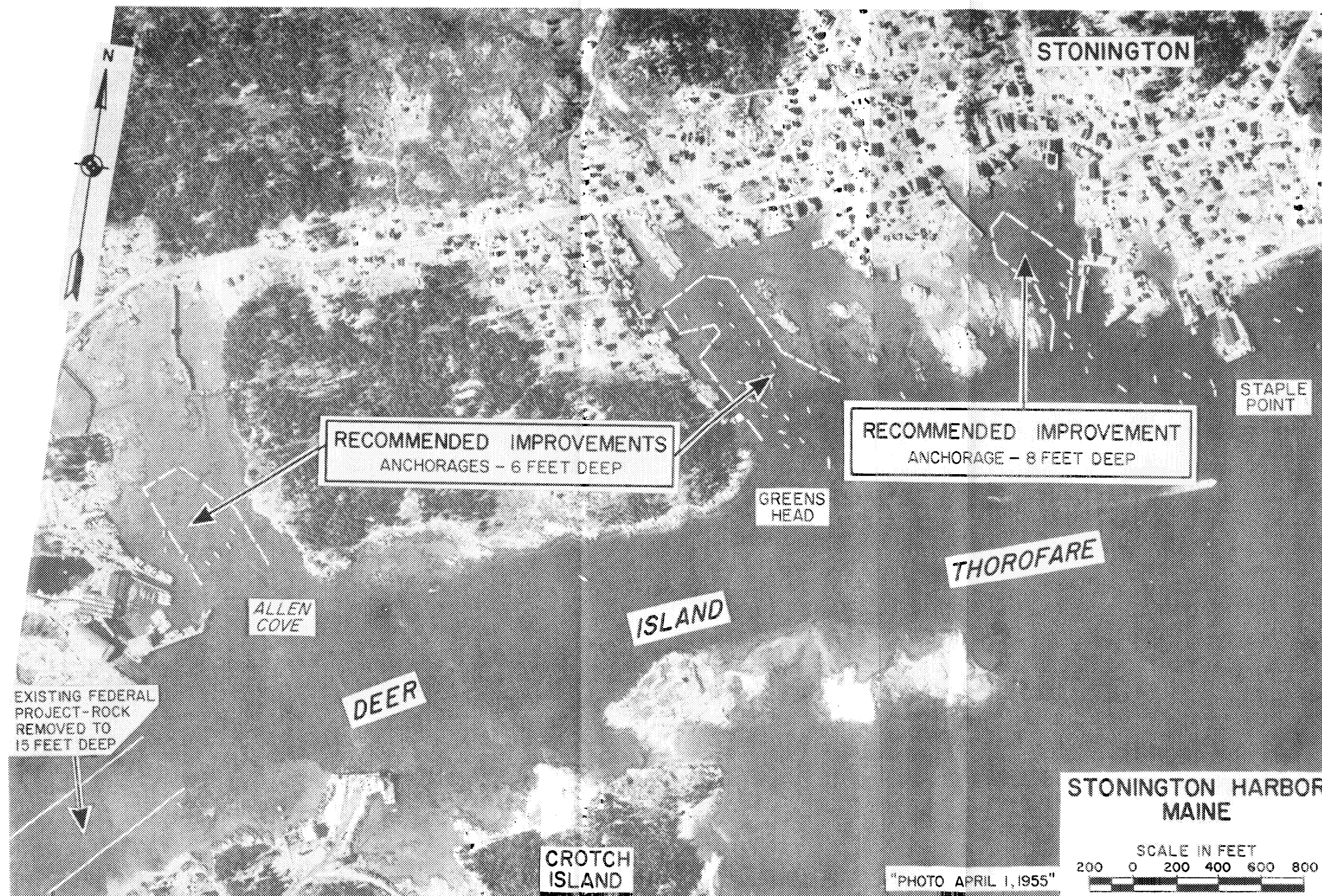
SCOPE OF STUDY

5. For this report a detailed hydrographic survey consisting of soundings and probing was made to determine the character and volume of material to be dredged. Available maps, commercial statistics and other data pertaining to the harbor were studied. A public hearing was held in Stonington, Maine on September 29, 1955 to enable local interests to present their views. The information obtained from this hearing has been further supplemented by recent field investigations and contact with local interests. All additions or changes in improvements which have been requested subsequent to the hearing have been considered and incorporated in this report.

DESCRIPTION OF NAVIGATION CONDITIONS

6. Stonington Harbor is located on the southernmost tip of Deer Isle at the mouth of and to the east of Penobscot Bay. The harbor is about 22 miles east of Rockland and approximately 10 miles northeast of Vinalhaven. About 5 miles south is Isle Au Haut, a portion of which is a part of Acadia National Park. Open water directly to the south of the harbor is dotted by many small islands.

7. The water passage immediately south of the harbor is known as the Deer Island Thorofare. The Thorofare is approximately 5.5 miles long, has a least width of 100 yards and extends from Jericho Bay on the east to Penobscot Bay on the west. A portion of the Thorofare has been improved and the least depth in both the natural and improved channel is 15 feet. The passage is exposed to



both easterly and westerly winds. Tidal currents are not unduly strong and follow the general direction of the channel. The prevailing winds in the area are southerly in the summer and north-westerly in the winter. Although the least depth in the channel is 15 feet there are, in many locations, unmarked rocks with depths of 9 to 14 feet on either side of the channel and local knowledge is necessary to carry a draft greater than 9 feet at low water.

8. Stonington Harbor, itself, may best be described as extending about 2.5 miles along the southern shore of Deer Isle on the north side of the Thorofare. The harbor is made up of several small coves the most used of which lies off the central portion of the town between Staple Point and Greens Head. This cove extends inland about 1200 feet, is approximately 2,100 feet wide and generally rectangular in shape. The inner portion of this cove has depths ranging from 0 to 5 feet and the outer portion has depths of from 5 to 18 feet. The cove is dotted by several small rocky islands and has many projecting ledges.

9. Allen Cove is located about 2,200 feet to the west of the central part of the harbor directly north of Crotch Island. The cove is formed by Deer Isle on the east and north and Moose Island on the west. The cove is generally rectangular in shape, extends 1,800 feet inland and is about 600 feet wide. Depths of from 0 to 7 feet prevail over much of the area of the cove. There are two other coves in the harbor, Webb Cove on the extreme eastern edge of the town and Mill Cove which is located in Crotch Island. The remaining portion of Stonington Harbor fronts directly on the Deer Island Thorofare. The east and west approaches to the harbor are by means of the Deer Island Thorofare and the southern approach is the channel between Crotch Island on the west and Sam Slick Ledge on the east. All of these approaches have sufficient depths for the craft normally using Stonington Harbor.

10. During severe winters ice closes Stonington Harbor and the Thorofare. The harbor is tidal with practically no fresh water inflow. The mean range of tide is 9.7 feet with a spring range of 11 feet. The extreme low tide is minus 4 feet, mean low water. Tidal currents are negligible inside the harbor.

11. The locality is shown on U. S. Coast and Geodetic Survey Charts numbers 1203, 309 and 227 and on the maps accompanying this report.

TRIBUTARY AREA

12. Deer Isle and the numerous small islands to the south and east constitute the towns of Deer Isle and Stonington. The Town of Stonington, the southern of the two, borders on Deer Island Thorofare and includes the islands to the south. The village of Stonington is located principally on the shores of the central cove between Greens Head and Staple Point and scattered developments

exist along the remaining shores of the reach. The permanent population of Stonington in 1950 was 1,657 according to U. S. Bureau of Census figures.

13. Although there is some light farming and truck gardening within the town limits of Stonington, the primary industries of the community are commercial fishing, boat building, repair and servicing, and the canning and packing of the commercial fish catch. In addition to these industries there is a substantial granite quarrying and fabricating industry located on Crotch Island which supplies finished and semi-finished granite to the building trades.

14. Deer Island Thorofare is an important inshore route carrying east-west boat traffic along the coast of Maine, and Stonington is an important stopping point, particularly for vessel traffic on the way east from Rockland and other Penobscot Bay ports. Fishing boats plying the coast make Stonington a port of call for supplies, boat repairs and fuel. The close proximity of Isle Au Haut, a part of Acadia National Park, makes the supplying and entertainment of summer visitors important to the area.

15. Stonington is serviced by Maine Route 172 which connects with U. S. Route No. 1 at Ellsworth, Maine. Daily bus service is maintained between Stonington and the City of Bangor over the Deer Isle - Sedgwick Bridge, which connects Deer Isle and the mainland. The nearest railroad siding is located at Ellsworth, Maine approximately 41 miles to the northeast.

BRIDGES

16. There are no bridges crossing any portion of the waterways under consideration. A causeway, which connects Deer Isle and Moose Island, is located in the northwest corner of Allen Cove.

PRIOR REPORTS

17. Other than the preliminary report of 1955, referred to in Paragraph 2, which led to this report, there are no prior reports concerning Stonington Harbor as a whole. The report under review is an unpublished survey report, dated August 25, 1936, which considered desired improvements in the Allen Cove portion of the harbor. This report was unfavorable to dredging an area in the outer part of the cove to depths of 12 to 14 feet, mean low water, an area in the inner cove to depths of 6 to 8 feet, and the removal of a pinnacle ledge near the entrance to the cove. The report found that the preponderance of ledge at the depths desired by local interests precluded the project because of the excessive cost of ledge removal.

18. A favorable survey report published in House Document No. 1128, 62nd Congress, 3rd Session forms the basis of the existing project for the Deer Island Thorofare.

EXISTING CORPS OF ENGINEERS PROJECT

19. There is no existing Federal project for Stonington Harbor or for any of the coves adjoining the Deer Island Thorofare. There is, however, an existing project for the Thorofare. The project was adopted in 1913 and completed in 1915 and provides for the excavation of rock to a depth of 15 feet at mean low water, over an area approximately 800 feet long and 300 feet wide. The existing project is located at the westerly end of the Thorofare between Moose Island on the north and Crotch Island on the south. No conditions of local cooperation were prescribed. Federal expenditures to date for the improvement of Deer Island Thorofare total \$40,000, all of which has been expended for new work. The controlling depth in the existing project is 15 feet at mean low water.

OTHER IMPROVEMENTS

20. No improvements for general navigation, other than the provision of private landings and a temporary public landing by local interests, have been made in Stonington Harbor. The Town of Stonington, since 1946, has appropriated \$5,300 and expended \$3,700 for purchase of a site and construction of a public landing west of Staple Point. The site is not yet in use because of the lack of adequate depths alongside.

TERMINAL AND TRANSFER FACILITIES

21. There are ten active commercial terminal facilities in Stonington Harbor. One of these facilities belongs to a large commercial processing company, two belong to a builder of commercial and recreational boats, four belong to wholesale lobster dealers, one to the Lobster Cooperative, one to a processor of fish scales, one to the local hardware dealer, and one to a producer of building granite. All but one of these facilities can be serviced by commercial truck lines.

22. In addition to these facilities in Stonington Harbor the granite corporation maintains a wharf for their own business use on Crotch Island. There is also an old stone quarry wharf with a depth of about 8 feet alongside located in Webb Cove at the eastern end of the town. A wharf built out to deep water in 1949 located on the north side of the Thorofare between Greens Head and Allen Cove has since been destroyed. The following is a complete tabulation of all active commercial terminal facilities in Stonington Harbor:

COMMERCIAL TERMINAL FACILITIES IN STONINGTON HARBOR

Name and Location	Type of Construction	Berthing Space		Facilities	Use
		Length Feet	Depth (M.L.W.)		
Stonington Lobster Cooperative, Indian Pt. Road	Wood deck on wood piling	150'	5'	Power winch for loading bait and hoisting fish cargo. Lobster cars, for storage of lobsters, Fishermen's supplies.	Receipt of fish and lobster for sale and trans-shipment.
John L. Goss Corp. (Deer Isl. Granite Co.) Bayview Avenue	All granite. Wood fender piles	225'	10'	Adjustable slips, 30 ton power operated stiff legged derrick, storage sheds. 100,000 gallon capacity oil storage tanks, water available.	Receipt of granite from Crotch Island Quarry. Oil dock.
R. K. Barter Canneries, Factory Wharf Staple Point	Granite faced and filled under build-ings. Wood deck on wood piling for balance.	350'	4' to 8'	2 power hoists	Commercial fish cannery.

Name and Location	Type of Construction	Berthing Space		Facilities	Use
		Length Feet	Depth (M.L.W.)		
Colwell Bros. Co., End of Sea Breeze Avenue	Wood deck on wood piling	80'	2' to 6'	Power winch and boom. Lobster cars for storage. Oil and gasoline storage tanks. Storage bldgs., Water & fuel available.	Receipt of Lobsters for sale and transshipment.
Orrin Alley, End of Atlantic Avenue	Wood deck on wood piling	100'	4' to 8'	Lobster cars for storage of lobster.	Receipt of Lobsters for sale and transshipment.
Atlantic Avenue Hardware, Inc.	Wood deck on wood piling at outer end. Inshore end granite faced, earth filled.	400'	0' to 8'	Power winch and boom. Water and fuel available. Storage tanks for fuel oil and gasoline.	Mooring of boats for supplies.
E. R. Crozier, Powderhouse Is., in harbor	Wood deck on wood piling	100'	3' to 8'	Lobster cars for storage of lobster. Winch for unloading.	Receipt of Lobsters for sale and transshipment.
Crystal Products Co., Greens Head	Granite faced, earth filled. Timber piles for mooring	40'	0'	Hand unloading	This is a herring scale processing plant.

Name and Location	Type of Construction	Berthing Space		Facilities	Use
		Length Feet	Depth (M.L.W.)		
Clyde Conary, Greens Head	Wood deck on wood piling	100'	4'	Power winch and boom for handling lobster crates. Cars for lobster storage.	Receipt of Lob- ster for sale and tranship- ment.
Stonington-Deer Isle Yacht Basin Inc., east side of Moose Island	Wood deck on wood piling. Pier #1 and Pier #2	460' 200'	7' to 11' 5' to 9'	Fuel available, 3 marine railways with capacities of 100 tons, 60 tons and 30 tons. Covered and open, wet and dry storage. All types of repairs.	Construction and repair of commercial and recreational craft.

23. The town of Stonington maintains one temporary public landing in the harbor during the summer months. This landing consists of one 36 foot by 10 foot float with a 30 foot long access walkway running to the float from the dock of the Barter Lobster Company. There are no unloading or freight handling facilities at this landing. This landing is very inadequate in size and facilities and unsatisfactory from the standpoint that it emanates from a privately owned dock. The mail, supply and passenger service to the outlying islands and the other commerce of the harbor substantiates the need for a much more elaborate public landing.

24. All of the several commercial terminal facilities described above are considered to be in good to excellent condition.

IMPROVEMENT DESIRED

25. A public hearing was held at Stonington, Maine on September 29, 1955 for the purpose of giving local interests an opportunity to express their desires for improvements. The meeting was attended by representatives of the local government, the fishing industry, other business interests and interested citizens. Letters were presented from members of the Federal and State governments and from additional fishing interests and other business concerns.

26. The improvements desired, as outlined by the chairman of the Harbor Committee of the Deer Isle - Stonington Chamber of Commerce, is to have several areas dredged to provide adequate depths for the navigation of small craft at all stages of the tide in sheltered harbor areas where terminal facilities are located, and to provide adequate sheltered anchorage areas. The depth desired was 8 feet at mean low water, or depth to ledge if ledge is encountered at less than 8 feet. Local interests specified five areas which they desired to have dredged.

a. An area in Allen Cove. This cove is to the west of the central harbor area.

b. An area in the central harbor immediately east of Greens Head.

c. An area in the central harbor immediately west of Staple Point.

d. An area in the central harbor immediately west of R. K. Barter Canneries dock and in front of the Barter Lobster Co. dock.

e. An area in the eastern part of the harbor in the vicinity of the Lobster Cooperative.

27. Local interests stated, generally, that existing depths in the available harbor areas are insufficient to allow fishing craft and other vessels to use the existing terminal facilities at the lower stages of the tide. As a result many tidal delays are incurred in landing the fish and lobster catch. It was further stated that the Town of Stonington is very interested in constructing a permanent public landing and has appropriated a sum of money for that purpose. Present depths of water in the sheltered areas of the harbor are so shallow that construction of this landing is impracticable. In addition, local interests stated that insufficient depth in the protected areas of the harbor force fishing boats and other craft to anchor in exposed areas on the north edge of the Deer Island Thorofare with consequent risk of storm damage.

28. Representatives of the Marine Sea Products Corporation, Rockland, Maine; of the Consolidated Lobster Company, Hancock, Maine; local fish and lobster buyers and a number of individual fishermen requested dredging in the area between Staple Point and Greens Head. These interests pointed to substantial tidal delays resulting from the present shallow depth in this part of the harbor. Interests from Isle Au Haut also requested that this same area be dredged so as to eliminate delays in the shipment of mail and supplies to the outlying islands and hazardous conditions which often exist in transporting passengers to these islands. An official of the John L. Goss Granite Corporation, located on Crotch Island, stated that insufficient depths of water in the sheltered area of the harbor necessitated landing employees, who are transported daily back and forth to Stonington, under extremely hazardous conditions at exposed locations during bad weather. He further stated that his company has experienced considerable tidal delay in landing granite products at Stonington Harbor for transshipment. The annual value of the granite shipments is in the range of \$1,000,000. Various Town officials and business interests pointed out that adequate depth in this sheltered central portion of the harbor was a necessary prerequisite to the construction of a permanent public landing.

29. Officials of the following companies: R. K. Barter Canneries; the Atlantic Avenue Hardware Company, Inc., which maintains wharves used by at least 35 fishermen and provides 16 bait houses for fishermen; Colwell Brothers, lobster dealers; and A. C. McLoon and Company of Rockland, Maine, distributors of petroleum products, requested the dredging of an area immediately west of the R. K. Barter Canneries wharf in addition to the central area between Greens Head and Staple Point. These persons cited substantial tidal delays to fishing vessels and to oil tankers engaged in delivering in excess of 800,000 gallons of petroleum products annually to Stonington. It was further stated that present depths in this area are so shallow at low water that the lobster cars ground out, with consequent losses from spoilage.

30. Representatives of the Stonington Lobster Cooperative, owners of a wharf used by 30 to 40 lobster fishermen; requested that an area in the vicinity of the Lobster Cooperative be dredged. This

area is located a short distance east of Staple Point. It was also stated that the lobster fishermen would benefit from the dredging of Allen Cove, where several large lobster pounds are located.

31. Local interests and officials were again consulted in October 1956. They have now concentrated their desires for improvement in the areas of the Central Cove, Allen Cove and immediately west of the R. K. Barter Canneries wharf. Local interests are particularly desirous of having sufficient depth of water in the area west of Staple Point made available so that the construction of their planned public landing in that area is practicable.

EXISTING AND PROSPECTIVE COMMERCE

32. The commerce of Stonington Harbor is comprised of commercial fishing, building, repairing and servicing commercial and recreational craft, quarrying and transshipping building and monumental granite, gasoline and fuel oil, animal products, and pulpwood. The United States Waterborne Commerce Statistics reported an average annual commerce of about 14,000 tons during the years 1943 to 1955. This annual reported commerce includes granite and granite products of over 8,200 tons, approximately 2,000 tons of petroleum products and about 1400 tons of fish and fish products, including over 200 tons of shellfish. Statistics of the Maine Department of Sea and Shore Fisheries indicate that about 3000 tons of lobsters, 500 tons of other shellfish and 14,500 tons of fish were landed annually, during the period 1951-54, in Hancock County, where Stonington Harbor is one of the major ports. Local interests estimate that about 1750 to 2000 tons of lobsters are either landed at Stonington Harbor or transported through the Deer Island Thorofare, annually. Information obtained from local interests in connection with this study indicate that in the period from 1951 to 1955 the actual annual fish and fish products landings at Stonington Harbor amounted to 2800 tons of which about 700 tons were lobsters. This amount of catch is more nearly consistent with the Maine Sea and Shore Fisheries statistics for Hancock County, and corresponds to the estimated average lobster catch per fisherman experienced in other Maine harbors. Using 2100 tons of fish and 700 tons of lobster landings, the annual value of the commercial fish catch is estimated to be about \$700,000, based on an average price of \$0.04 per pound for fish and \$0.38 per pound for lobsters.

33. The Stonington - Deer Isle Yacht Basin, Inc., a boat building concern located in Allen Cove at the west end of the harbor does a yearly business in building, repairing and servicing commercial and recreational boats in excess of \$500,000. This concern employs approximately 200 persons and presently holds a 5 year, \$2,225,000 contract with the United States Navy to build air-sea crash rescue boats for the United States Navy. The Crystal Products Company, a company engaged in the processing of herring scales to make pearl essence for paints, ceramics and plastics, does a gross annual business of about \$100,000. This concern, which is located on the eastern shore of Greers Head, owns

three pumper boats which bring the fish scales to the plant for processing.

34. In addition to the industry located in the harbor the mail and much of the supplies destined for Isle Au Haut and the other nearby islands are shipped from Stonington Harbor. The value of this commerce has been estimated to be \$50,000 to \$60,000 annually. Passenger traffic to the outlying islands is important to the town. There are approximately 225 permanent residents on Isle Au Haut and because of a portion of it being a part of Acadia National Park numerous tourists pass through Stonington to visit the island each year. In addition, the location of Stonington in regard to the Deer Island Thoroughfare, a water passage heavily used by small craft sailing the coast of Maine makes the harbor an attractive stopping point for supplies, fuel and food.

35. Local interests feel that the commerce of the harbor would increase if the harbor was improved. The local cannery which is now processing about 2,000 tons of fish product per year is capable of handling up to 5,000 tons. The harbor is attractively located for all types of transient craft and has the facilities for servicing these vessels. The elimination of tidal delays would permit a more rapid transshipment of granite and petroleum products. The construction of a public terminal facility would increase the quantity of supplies shipped to the outlying islands through Stonington and decrease the shipping costs of these supplies.

VESSEL TRAFFIC

36. There are no accurate records of vessel trips available for Stonington Harbor. Local interests stated that the locally based fishing fleet is engaged in day fishing which means that practically without exception all the boats in the fleet return to the harbor at night. The locally based fleet is composed of 123 lobster boats, 4 draggers, 9 seiners, 3 carriers, 1 scalloper and 3 pumpers. Based on an average of 150 fishing days per year the locally based fleet would contribute 43,000 vessel trips per year to harbor traffic. The John L. Goss Corporation, which operates the granite quarry on Crotch Island, owns and operates 2 diesel powered boats and two 45 ton steel barges. The Stonington - Deer Isle Yacht Basin, Inc. contributes to the harbor traffic in testing the small craft which they are building for the United States Navy.

37. In addition to the locally based traffic a considerable number of transient craft visit the harbor during the year. The harbor is used by 25 or more sardine carriers, by boats of the Maine Sea Products Corporation of Rockland and the Consolidated Lobster Company of Hancock, Maine as well as by other transient fishing vessels and vessels of Canadian registry. The harbor is used by two tankers of the McLoon Company, which make

regular petroleum deliveries to Stonington. In addition to these boats the harbor is regularly visited by approximately 70 fishing craft which come in from the outlying islands. The total yearly vessel traffic in Stonington Harbor is conservatively estimated to be between 60,000 and 70,000 vessel trips.

DIFFICULTIES ATTENDING NAVIGATION

38. The difficulties attending navigation in Stonington Harbor are those associated with lack of depth at low tide which create hazards to navigation, congestion at the terminal facilities, and tidal delays. The lack of depth at low water in the sheltered portions of the harbor interferes with the normal commerce of the harbor and necessitates anchoring many boats in exposed locations with the attendant difficulties of anchoring and securing the boats and getting the men ashore safely.

WATER POWER AND OTHER SPECIAL SUBJECTS

39. The harbor is tidal and matters of water power and flood control are not pertinent to this report. There is no problem with pollution in the harbor. The improvement contemplated would have no effect on wildlife or shellfish.

PLAN OF IMPROVEMENT

40. At the public hearing held in Stonington, Maine on September 29, 1955 local interests expressed a desire for the dredging of five separate and distinct anchorage areas within Stonington Harbor. They requested that these areas be dredged to a depth of 8 feet at mean low water or to ledge if encountered at a lesser depth. Representatives of state and local governments did not definitely define the limits of the individual areas. Generally these areas are as follows:

- (a) An area in Allen Cove
- (b) An area immediately east of Greens Head
- (c) An area immediately west of Staple Point
- (d) An area south of Staple Point and immediately west of the R. K. Barter Canneries Wharf, and
- (e) An area in the immediate vicinity of the Lobster Cooperative.

41. Local interests stated that generally, existing depths in the available harbor areas at the lower stages of the tide seriously hamper the commerce of the harbor and result in considerable congestion around the commercial terminal facilities. The lack of sufficient depths in the protected areas of the harbor necessitates mooring the local and transient commercial and recreational craft in exposed areas along the northern edge of the

Deer Island Thorofare with the consequent risk of damages. In addition, local interests stated that the Town of Stonington has appropriated funds for the construction of a public landing which would greatly benefit general navigation in the area, but that lack of sufficient depths in the protected areas of the harbor has made construction of this facility impracticable.

42. The five areas in which local interests requested dredging have been individually studied. Based on the hydrographic survey made of Stonington Harbor, the area in the vicinity of the Lobster Cooperative, which local interests desired to have dredged, does not require dredging. This facility is used almost wholly by lobster boats which draw between 2-1/2 and 3-1/2 feet. Present low water depths in the vicinity range from 5 to 10 feet, to within 100 feet from the shore and 50 feet from the wharves, therefore no anchorage improvement of this area has been considered. The remaining areas which local interests requested to have dredged do not have sufficient low water depths for commercial navigation. Local interests requested that all areas be dredged to a depth of 8 feet or to ledge if ledge is encountered at a lesser depth. Based on the type and draft of the commercial boats which regularly use Stonington Harbor this 8 foot depth in all of the proposed anchorage areas is considered to be in excess of that required. The present locally based commercial fishing fleet is predominantly lobster boats. Of the 143 locally based boats 123 are of the lobster boat type. In addition, the preponderance of ledge in the protected areas of the harbor, particularly in the area between Greens Head and Staple Point, makes impractical the dredging of as extensive areas as requested by local interests.

43. In consideration of the foregoing a plan of improvement has been developed for Stonington Harbor. This plan consists of the following:

- (a) A 4 acre, 6-foot deep anchorage area in Allen Cove about 300 feet wide and 650 feet long
- (b) A 5 acre, 6-foot deep anchorage area immediately east of Greens Head about 330 feet wide and 700 feet long, and
- (c) A 2 acre, 8-foot deep anchorage area in the vicinity of Staple Point about 200 feet wide and 400 feet long.

44. Based on an area use of 8 to 9 lobster boats per acre the two anchorage areas, the one in Allen Cove and the one in Greens Head Cove, and the areas adjacent to them not requiring dredging, would provide space for between 80 and 85 lobster boats on free swinging moorings. The present locally based lobster fleet includes 123 boats; however, by nesting a portion of the fleet in the inshore end of these anchorages where they would be well protected from storm damage and utilizing to the fullest

those areas of the harbor which presently have sufficient depths, the capacity of the protected areas of the harbor could be sufficiently increased to provide space for all of the present fleet and any growth in the fleet which may take place in the foreseeable future. It is considered that a simple walkway and float type of public landing to serve the Allen Cove anchorage should be constructed by local interests to insure the most efficient and effective use of this anchorage. A public landing to serve the Greens Head anchorage is not considered to be necessary because of the considerable number of landings in this area already available to the fishermen.

45. The third area considered in the plan of improvement combined the two areas to the west and south of Staple Point requested by local interests to be dredged to a depth of 8 feet. The hydrographic survey indicates that in the area directly south of Staple Point present depths are adequate over much of the area. Where present depth is not adequate the lack of water is due to rock on the harbor bottom; therefore, no anchorage improvement of this area has been considered. The area to the west of Staple Point, however, would be dredged to a depth of 8 feet to provide adequate depths in the channel to the proposed public landing in the vicinity of Noyes Wharf for the larger deeper draft boats. This area would also provide anchorage area for the local and transient draggers, seiners and carriers which regularly use Stonington Harbor and the commercial terminal facilities at Staple Point. In addition the tankers, trash fish carriers and other deeper draft commercial boats which service these facilities require a depth of 8 feet. So as to insure the most efficient and effective use of the docks and wharves in the harbor, local interests are expected to dredge the berths alongside the terminal facilities, and should provide necessary berths of adequate depths alongside public landings.

46. Local interests and officials have indicated that the plan of improvement considered herein is consistent with their desires and would provide the benefits which they desire.

SHORE LINE CHANGES

47. The plan of improvement considered for Stonington Harbor would have no significant effect on the shore line of the harbor.

AIDS TO NAVIGATION

48. The United States Coast Guard has been consulted and has indicated that no additional aids to navigation would be required for the proposed improvement.

ESTIMATES OF FIRST COST

49. The estimates of first cost for the considered improvement are as follows:

Project Construction:

Corps of Engineers

Dredging approximately 70,000 cubic yards of ordinary material, sand, gravel and mud at \$2.50 per cubic yard.....	\$175,000
Contingencies.....	25,000
Engineering and Design.....	5,000
Supervision and Administration.....	<u>15,000</u>
Total Project Construction Cost.....	\$220,000

Other Construction:

Local Interests

Construction of a public landing in Allen Cove.....	\$ 4,000
Construction of a public landing in the central part of the harbor.....	10,000
Dredging public and private berths, approximately 5,000 cubic yards of ordinary material at \$2.00 per cubic yard....	<u>10,000</u>
Total Other Construction.....	\$ 24,000

TOTAL CONSTRUCTION COST (April 1957).....\$244,000

50. The proposed dredging would be of ordinary material composed of sand, gravel and mud. The dredging quantities are in terms of in-place measurement and provide for dredging to the considered project depths of 6 feet and 8 feet plus an allowance of 1 foot of overdepth. Side slopes for the proposed improvement have been taken as 3 horizontal to 1 vertical. Because of the lack of adequate spoil disposal areas at Stonington Harbor for construction and maintenance of the improvement, the estimated unit prices are based upon the material being removed by bucket dredge and scow and disposed of at sea. All costs are based upon cost levels prevailing in April, 1957.

ESTIMATES OF ANNUAL CHARGES

51. The estimated annual charges have been based on a life of the project of 50 years and an interest rate of 2.5 percent on both the Federal and non-Federal investment. The annual charges have been

computed on the basis that local interests would be required to construct two additional public landings with berths of adequate depth, open to all on an equal basis, and would dredge berthing space alongside the existing commercial terminal facilities. The public landings are considered to be non-self-liquidating.

INVESTMENT

Federal Investment:

Dredging anchorages \$ 220,000

Non-Federal Investment:

Construction of a public landing in Allen
Cove \$ 4,000
Construction of a public landing in the
central part of the harbor \$ 10,000
Dredging public and private berths,
approximately 5,000 cubic yards of
ordinary material at \$2.00 per cu. yd \$ 10,000

Total First Costs \$ 244,000

ESTIMATED ANNUAL CHARGES

	<u>Corps of Engineers</u>	<u>Local Interests</u>	<u>Total</u>
Interest on Investment	\$ 5,500	\$ 600	\$ 6,100
Amortization	2,300	250	2,550
Maintenance	<u>2,500</u>	<u>450</u>	<u>2,950</u>
Total Annual Charges	\$ 10,300	\$1300	\$ 11,600

ESTIMATES OF BENEFITS

52. The provision of additional anchorage areas in Allen Cove and Greens Head Cove and the deepening of the harbor in the vicinity of the commercial terminal facilities would result in benefits accruing from increased fishing commerce, reduction in storm damage to boats and equipment and the reduction of the congestion in the vicinity of the terminal facilities. It will further result in benefits accruing from the provision of a more adequate harbor of refuge for small craft in the area. In addition the proposed improvement would eliminate tidal delays presently experienced by mail and supply boats, which serve the outlying islands from Stonington

harbor, and the tankers and other commercial craft which land product in Stonington Harbor. The proposed improvement would also provide sufficient depth of water in the protected areas of the harbor, thereby making the construction of public landings practical, facilities sorely needed by the Town of Stonington.

53. Several factors testify to the fact that increased fishing commerce would develop if the improvements considered herein are provided in Stonington Harbor. There are several large fishing concerns, among them Connors Bros. Ltd., of New Brunswick and the Consolidated Lobster Co., Inc., of Hancock, Maine, which operate fleets of boats in the area, who have advocated improvement of the harbor. Local interests stated that the shoaling of the harbor has seriously affected the growth of the lobster industry due to tidal delays and severe congestion in the vicinity of the terminal facilities owned by the several lobster dealers. Statistics obtained from local interests and the Department of Sea and Shore Fisheries of the State of Maine indicate that between 1,750 and 2,000 tons of lobsters are landed in Stonington Harbor, or transported through the thoroughfare, each year, making it one of the largest lobster ports on the Maine coast between Rockland and Eastport.

54. Stonington Harbor is located in close proximity to important and productive alongshore and offshore fish and lobster grounds. There are four lobster dealers located in the harbor who purchase fish and lobster on a year around basis. These dealers are serviced by trucking lines and by the lobster carrier of The Consolidated Lobster Company thus insuring rapid trans-shipment of the product to markets all over the United States. One of the largest canneries on the eastern Maine coast is located in Stonington. This cannery employs about 200 persons during the height of season and presently cans on the average of between 2,000 and 3,000 tons of fish per year. The capacity of this cannery can be readily increased to 5,000 tons per year. The harbor has a completely equipped commercial and recreational boat building and repair yard and a marine hardware outlet which carries a complete inventory of spare parts for commercial boats. Water and fuel are available at most of the commercial docks. The harbor is used as a harbor of refuge by the small craft in the area.

55. Stonington Harbor is the home port of a fishing fleet of 143 vessels which includes 123 lobster boats, 4 draggers, 9 seiners, 3 carriers, 1 scalloper and 3 pumper boats. Based on an average present day value of \$3,500 for each lobster boat, \$12,000 for each dragger, \$30,000 for each seiner, \$40,000 for each carrier, \$12,000 for each scalloper and \$20,000 for each pumper boat, the total present day value of the local fishing fleet is estimated at \$940,000. In addition to the locally based fleet 40 lobster boats from Isle Au Haut and 20 lobster boats from Swans Island regularly enter Stonington Harbor to dispose of their catch and obtain supplies. There are also between 25 and 30 transient carriers which regularly use Stonington Harbor as a lay-over port while waiting for fish cargo or come into the harbor to dispose of their cargo at the cannery. Some of these boats are of Canadian registry. The location of Stonington Harbor on the Deer Island Thorofare, an important inshore route between the fishing grounds of Penobscot Bay on the west and Blue Hill Bay on the east, makes it an ideal stopping point for fishing vessels sailing between these grounds.

56. Several of these factors which have contributed to a steady growth in the fishing commerce of the harbor would undoubtedly continue to encourage growth regardless of further improvement to the harbor. The degree to which this further expansion can occur, however, is seriously hampered by the congestion in the area of the terminal facilities, the lack of ready access to many of these facilities and the lack of sufficient protected anchorage areas for both the local and transient fishing fleets. The lack of a protected area in the harbor of sufficient depth on which to construct a public landing has also done much to hamper the growth of commerce in the harbor. Local interests feel that the proposed improvement will provide the impetus for the increased use of the existing facilities and the establishment of additional facilities. The provision of an anchorage area in Allen Cove would very probably result in additional lobster purchasing and handling facilities being established in the Cove to serve the fleet which would regularly use this anchorage. In addition, the elimination of tidal delays and congestion in the vicinity of the terminal facilities would permit a more efficient use of the harbor facilities by a greater number of commercial boats thereby encouraging further growth of the fishing industry.

57. Studies indicate that New England population may be expected to increase by at least an average of 15 percent over the life of the project. If facilities are available, it is believed that in view of the favorable factors outlined above and the general overall increased use of fish and fish products due to technological advances in the processing and shipping of the product and new types of product, fishing commerce in Stonington Harbor would expand at least in proportion to the expected population increase. Based on the estimated \$700,000 value of the present annual fishing commerce, the average annual value of a 15 percent increase would be \$100,000. Of this potential increase it is considered that 50 percent would occur at Stonington Harbor without the provision of the proposed improvement. The remaining 50 percent, or \$50,000 annually, could accrue at Stonington Harbor only with the provision of additional anchorage areas.

58. It is considered that a substantial portion of this anticipated increase in fishing commerce at Stonington Harbor would accrue to other nearby fishing ports such as Rockland and Belfast, if the considered improvement in Stonington Harbor was not provided. Therefore, only a portion of the total potential increase can be attributed exclusively to the provision of the proposed improvement of Stonington Harbor. While conditions, in this instance, make impracticable a precise estimate of the proportion of the increase directly attributable to the improvement of Stonington Harbor, in the best judgment of the reporting officer that portion would be at least 40 percent. The gross annual value of this increase to the fishermen, therefore would be \$20,000. Since the operating costs to land the fish and lobster represent about 60 percent of the gross value to the fishermen, the net equivalent annual value of the increase in fishing commerce due to the proposed improvement of Stonington Harbor is 40 percent of the gross value of \$20,000 or \$8,000 annually. The tangible

benefit accruing to the improvement of Stonington Harbor by virtue of increased fishing commerce, is therefore taken to be \$8,000 annually.

59. In addition to an increase in fishing commerce, a major benefit which would result from the proposed improvement of Stonington Harbor is the reduction in storm damage to the local and transient commercial fishing fleet. At the present time due to the definite lack of sufficient depths of water in the protected areas of the harbor a major percentage of the commercial fishing boats must be moored in exposed locations along the northern edge of the Deer Island Thorofare. The Thorofare which runs in a general east-west direction is openly exposed to easterly storms, storms which are common to the New England coast. Approximately 85 percent of the boats in the local fleet are lobster boats. These boats draw only $2\frac{1}{2}$ to $3\frac{1}{2}$ feet of water and have very little freeboard, consequently being moored in exposed areas during storms, these boats are more readily capsized or swamped.

60. Local interests stated that there have been several instances when boats moored in exposed locations with $\frac{3}{8}$ inch to $\frac{1}{2}$ inch chain have broken their moorings and have been run into the rocks, and severely damaged or sunk. The harbor is very dangerous from this standpoint, due to the many projecting ledges within the harbor and the very rocky coastline. There are no beaches where a boat might ground out; it is driven onto the ledges by wind and sea and broken up. Although there are no records of damage or loss to boats and boat gear, available information indicates that loss due to storm damage over the past ten years has been considerable. While conditions in this instance make impracticable a precise estimate, in the best judgment of the reporting officer, based on the type of boats in the fleet and the physical characteristics of the harbor, storm damage to the fishing fleet would amount annually to at least one half of one percent of the total present day value of the fleet or \$4,700. It is considered that the proposed improvement of Stonington Harbor would reduce this storm damage by at least 80 percent, or \$3,800 annually. The tangible benefit accruing to the improvement by virtue of a reduction in storm damage to the fishing fleet is therefore taken to be \$3,800 annually.

61. Stonington Harbor is the mainland supply point for many of the outlying islands to the south of Deer Isle. These islands include Isle au Haut, a portion of which is a part of Acadia National Park and a tourist area visited by many people each year. Isle au Haut has a permanent population of approximately 225 persons and each year upwards of 500 transient boats stop at the island. All of the mail and supplies destined for this island are transhipped through Stonington Harbor. In addition, the many tourists each year who visit this picturesque island are transported to the island from Stonington Harbor. The lack of sufficient depth of water in the protected areas of the harbor has reflected greatly upon the cost of transporting mail, supplies and passengers to these outlying islands and has resulted in considerable inconvenience and loss of business due to delays. Local interests stated that the lack of a public landing due to insufficient depths in the protected areas of the harbor was a major factor in the loss of a mail contract serving outlying islands valued at \$30,000 per year. A representa-

tive of Shepards Brothers Transport, one of the concerns engaged in transshipping supplies to the outlying islands, stated that the additional freight costs involved as a result of tidal delays was in excess of \$500 per year.

62. The proposed improvement would eliminate these delays and insure the immediate transshipment of mail and supplies to the outlying islands regardless of tidal conditions at the time. In addition the elimination of these tidal delays would make the trip to these islands considerably more convenient, thereby increasing the tourist trade in the area. Based on the foregoing the tangible benefit accruing to the proposed improvement by virtue of a decreased cost in transporting mail, supplies and passengers to the outlying islands is taken to be \$1,000 annually.

63. Although Stonington Harbor is primarily a commercial fishing port there is a small recreational fleet based in the harbor. The proposed improvement, by reducing the present congestion in the harbor, would provide a benefit to this fleet. The value of this benefit is estimated to be a part of the annual net return to the owners if they chartered their boats to others. The composition of the existing fleet, the estimated total present value of each type, the percentage value taken as a reasonable annual return on a for-hire basis and the annual net return are listed below:

Type of Boat	Number in Fleet	Length (feet)	Present Value	Annual net return to Owners	
				Percent	Value
Cruisers	7	20-51	\$ 49,000	9	\$4,410
Sail	3	22-34	3,000	12	360
Inboards	3	22-28	4,000	10	400
Outboards	50	10-20	20,000	10	2,000
	63		\$ 76,000		\$7,170

64. The total annual net return which could accrue to the existing fleet is about \$7,200. However, present conditions in the harbor limit the use of this fleet and the owners do not receive this return. The use of the boats is limited by severe congestion in the harbor and lack of depths at low tides. It is estimated that the boats in the fleet can be used on the average of about 75 percent of the time and as a result the owners receive approximately 75 percent of the possible annual return. The benefits to the recreational fleet accruing to the proposed improvement are evaluated as 25 percent of the total possible annual net return to the owners of \$1,800 per year. 50 percent of this figure or \$900 is a local benefit and 50 percent is a general benefit.

65. Local interests do not feel that there will be any appreciable increase in the recreational fleet either by boats being transferred from other harbors or by newly purchased boats as a result of the proposed improvement.

66. In addition to the reduction in storm damage to the commercial fishing fleet there would also be a similar benefit which would accrue to the recreational fleet. During the past 10 years reported loss or damage to recreational boats has been in excess of \$15,000. In 1954, as a result of a northeasterly storm, a cabin cruiser valued at \$6,500 and two small sail boats valued at \$1,500 each were blown onto the rocks and sunk. A 35 foot sport fisherman valued at \$4,000 was blown onto the rocks and severely damaged. In addition a considerable number of smaller boats have been lost or damaged as a result of southerly and easterly storms. Because Stonington Harbor is primarily a commercial fishing port and due to the lack of protected anchorage areas for a major portion of the commercial fleet the recreational boats must of necessity be moored in exposed locations and consequently suffer heavy storm damage. The proposed improvement, by providing protected anchorage areas in times of storm, would substantially reduce this storm damage and loss. It is considered that the proposed improvement would reduce the estimated annual storm damage to the recreational fleet of \$1,500 by at least 80 percent or \$1,200 annually. The tangible benefit accruing to the proposed improvement by virtue of the reduction in storm damage to the recreational fleet is therefore taken to be \$1,200 annually. 50 percent of this figure or \$600 is a local benefit and 50 percent is a general benefit.

67. Stonington is situated in a very popular summer recreation area and as a result there are a considerable number of transient boats in the area throughout the summer season. Its location in regard to the Deer Island Thorofare, a heavily traveled part of the Maine inland waterway and the close proximity to the Penobscot Bay area, a summer playground, increases the harbor's value as a harbor of refuge for recreational craft. Additional benefits may be credited to the improvements from provision of a more adequate harbor of refuge and availability of better anchorage space to the transient fishing and recreational fleet. These benefits are estimated to amount to about \$2,000, annually, of which 50% accrue to the transient fishing and 50% to the transient recreational fleet. The general and local benefits, therefore, are estimated to be \$1,500 and \$500, respectively.

68. The tangible benefits which are estimated to accrue from the proposed improvement of Stonington Harbor are summarized below:

<u>Source of Benefit</u>	<u>Amount General</u>	<u>Amount Local</u>	<u>Total Benefit</u>
Increased fishing commerce	\$8,000		\$8,000
Reduction in storm damage to the commercial fishing fleet	3,800		3,800
Decrease in cost of trans- shipping mail and supplies to the outlying islands	1,000		1,000
Increased use of the existing recreational fleet	900	\$900	1,800
Reduction in storm damage to the recreational fleet	600	600	1,200
Use as harbor of refuge and value to transient fleets	1,500	500	2,000
	<u>\$15,800</u>	<u>\$2000</u>	<u>\$17,800</u>

69. The proposed improvement will also contribute to the general safety of the citizens of the area. At the present time workmen being brought home by boat from the granite quarries on Crotch Island and other people who must come into Stonington Harbor from the outlying islands are exposed to extreme danger during storms in trying to land at the presently exposed docks and wharves. The proposed improvement would permit these landings to take place in protected areas of the harbor thereby greatly reducing the possibility of loss of life or severe injury. In addition, the people living on the outlying islands rely on the mainland communities for fire fighting apparatus in the event of fire on one of the islands. This equipment is transported by boat and at the present time at periods of low tide it would be virtually impossible to load this equipment onto the boats. The proposed improvement would provide sufficient depth of water in the protected areas of the harbor so that this equipment could be quickly loaded and transported to the islands.

COMPARISON OF BENEFITS AND COSTS

70. A comparison of the estimated annual benefits totalling \$17,800 and the estimated annual charges totalling \$11,600 results in a benefit-cost ratio of 1.5 to 1.0.

PROPOSED LOCAL COOPERATION

71. Local interests should be required to agree to hold the United States free from damages due to the construction and maintenance of the improvement, and to provide without cost to the United States all lands, easements and rights-of-way necessary for the construction of the project and for the subsequent maintenance thereof. It is expected that shore access will be required only for supplies and dredging range flags.

72. At the present time, there are no permanent public landings within Stonington Harbor. So that all citizens might share in the proposed improvement local interests should be required to construct a suitable public landing with adequate berths, open to all on an equal basis in the central cove area of the harbor to serve the 8-foot anchorage. The cost of this landing is now estimated to be \$10,000. In addition, so as to insure the most efficient and effective use of the proposed anchorage area in Allen Cove, local interests should be required to construct an additional public landing of the simple walkway and float type with adequate berths to serve this anchorage. It is considered that this landing is necessary due to the fact that there are no commercial landings in the cove available to fishermen and that the proposed public landing in the central cove area of the harbor is a considerable distance away. The cost of this landing is now estimated to be \$4,000. That portion of the proposed improvement in the vicinity of Staple Point has been designed to permit the operation of deeper draft vessels in the vicinity of the terminal facilities. To insure ready access to docks and wharves at all stages of the tide, local interests will have to dredge adequate berthing spaces alongside these facilities. The cost of this work is now estimated to be \$10,000. The total estimated cost of the work to be accomplished by local interests is \$24,000.

73. Although a portion of the benefits accruing to the proposed improvement of Stonington Harbor are entirely local in nature, the magnitude of these benefits is only 11 percent of the total benefits which would be derived. The total annual charges for the entire project are \$11,600. Of this amount local interests would pay \$1,300 or 11 percent of the total annual charges. Because this amount is equal to the percentage of local benefits derived from the project, no local cash contribution toward the cost of dredging should be required. Because of the lack of adequate spoil disposal areas for construction and maintenance of the improvement at Stonington Harbor, it is expected that the spoil will be dumped at sea. It is therefore considered that local interests should not be required to provide spoil disposal areas.

74. Officials of the State of Maine and the Town of Stonington have indicated that they would provide assurances that the requirements of local cooperation described above would be met.

COORDINATION WITH OTHER AGENCIES

75. All Federal, State and local agencies having interest in the improvement of Stonington Harbor were notified of the public hearing held at Stonington, Maine, on September 29, 1955. Representatives and officials of the Town of Stonington, other local interests and the Department of Sea and Shore Fisheries of the State of Maine have been consulted during the study concerning the effects of the proposed improvement on their activities. Officials of the Town of Stonington have expressed approval of the proposed improvement. Available information indicates that the fishing grounds in the vicinity of Stonington Harbor are capable of supporting the increased fish and shellfish catch used in this report as a basis of estimating increased fishing commerce in Stonington Harbor.

DISCUSSION

76. Stonington Harbor, located in the Town of Stonington, is situated on the southernmost shore of Deer Isle at the mouth of and to the east of Penobscot Bay. The water passage immediately south of the harbor is known as the Deer Island Thorofare which extends about 5.5 miles east and west between Deer Isle on the north and a grouping of smaller islands on the south. The Thorofare extends from Penobscot Bay on the west to Jericho Bay on the east and is a heavily traveled part of the Maine inland waterway, particularly by commercial fishing boats. A section of the Thorofare 800 feet long between Moose Island on the north and Crotch Island on the south was improved by the United States in 1915 to provide a least depth in the Thorofare of 15 feet at mean low water. The controlling depth in the passage is still 15 feet. The major island to the south of Stonington Harbor is Isle Au Haut, a portion of which is a part of Acadia National Park.

77. Stonington Harbor extends approximately 2.5 miles along the Deer Island Thorofare and has two coves in which most of the harbor activity is centered. The central cove is about 700 yards wide between Staple Point on the east and Greens Head on the west. The cove stretches inland a distance of 400 yards, has many projecting ledges, and shoals rapidly from depths of 14 and 15 feet at the outer edge to depths of 2 and 3 feet inside the cove. The village of Stonington is situated on the shores of this cove and most of the commercial fishing industry is located within the cove. The other cove, known as Allen Cove, is located about $\frac{1}{2}$ mile to the west of this area. This cove extends approximately 600 yards inland, is about 200 yards wide and has depths ranging from 3 to 6 feet over much of its area.

78. The Town of Stonington, which has a permanent population of about 1,700 (1956 estimate), includes the southern portion of Deer Isle and a number of the small islands to the south of the Deer Island Thorofare. The water-borne commerce of the harbor is devoted primarily to commercial fishing and the canning and packing of the fish and lobster catch and the building, repairing and servicing of commercial and recreational boats. The commercial fishing industry produces a product valued at about \$1,600,000 annually and the boat building industry adds an additional \$750,000 yearly to the commerce of the harbor. In addition to these industries there is a granite quarry located on Crotch Island which ships a product valued in excess of \$1,000,000 yearly through Stonington. The Town is connected to the main highway to the north by good roads and daily bus service operates between Stonington and Bangor.

79. Stonington Harbor is primarily a commercial fishing port and has many facilities which make the harbor attractive to commercial fishermen. The geographical position of the harbor is such that it is in close proximity to very productive fishing grounds, and its location on the Deer Island Thorofare makes it an ideal stopping and lay-over port for transient vessels fishing these grounds. The facilities for handling the fish catch are excellent. There is a large cannery and five lobster dealers located within the harbor and fish is purchased 9 months of the year. The cannery is presently canning 2000 to 3000 tons a year and has capacity to can up to 5000 tons per year. The lobster dealers are served by trucking lines and by the lobster carriers of the Consolidated Lobster Company of Hancock, Maine. In addition, there are two large lobster pounds located in Allen Cove for the fresh storage of lobsters.

80. In addition to the facilities for handling, processing and shipping the fish catch, Stonington Harbor offers the commercial fisherman and the yachtsman boat building and repair service. The boat yard in Allen Cove has marine railways with a capacity up to 100 tons. This yard, at the present time, has a contract valued at \$2,225,000 with the United States Navy to build air-sea crash rescue boats. The Atlantic Avenue Hardware Company located at Staple Point carries a complete inventory of marine hardware and supplies. Fuel and water are available to the boats at most of the commercial wharves in the harbor.

81. These facilities have resulted in a steady growth to the fishing industry in Stonington Harbor. The volume of fish and lobsters landed at the present time, approximates 2,800 tons valued at about \$700,000 yearly. The cannery at Staple Point has recently increased their yearly output from 2,000 tons to 3,000 tons. The present locally based commercial fishing fleet is composed of 143 fishing boats, 123 of this number being lobster boats. About 40 lobster boats from Isle Au Haut and 20 lobster boats from Swans Island regularly use Stonington Harbor to dispose of their catch and obtain supplies. In addition there are between 25 and 30 transient carriers, some of Canadian registry, which regularly use Stonington Harbor as an operational base while waiting for fish cargo. The continued growth of the industry in the harbor, is now however, severely hampered by the badly overcrowded conditions which prevail during the fishing season in the vicinity of the terminal facilities at Staple Point and by the definite lack of enough protected anchorage of sufficient depth to handle the locally based and transient commercial fishing craft which regularly use the harbor. The present protected anchorage areas are located on the outer edge of the Deer Island Thorofare. As a result of the insufficient size of these areas and the present unusable condition of the inner portions of the harbor, increasing numbers of boats must moor in exposed locations. In addition, Stonington because of its location is visited yearly by some 400 transient boats sailing in the coast of Maine, further adding to the already overcrowded conditions in the harbor.

82. The favorable location of Stonington Harbor, the existing facilities and the increased demand for fish and fish products all indicate that if facilities permit, the fish and lobster catch landed at Stonington may be expected to increase in proportion to the predicted average of 15 percent increase in the population of New England over the life of the project. Such an expansion is considered to be within the available natural resources of the area tributary to Stonington. It is estimated that 50 percent of this potential expansion would occur without the provision of the proposed improvement. However, the limitations of the harbor due to congestion around the terminal facilities and the definite lack of sufficient protected anchorage areas will prevent the full potential expansion of fishing commerce in Stonington Harbor. It is also considered that if the proposed improvement were not provided, a substantial percentage of the potential increase in fishing commerce would accrue to other nearby fishing ports such as Rockland and Belfast. In the best judgment of the reporting officer it is estimated that at least 20 percent of the 15 percent increase in average annual fishing commerce could not accrue without the provision of the proposed improvement to Stonington Harbor and is attributable exclusively to such improvement. Based on operating costs being 60 percent of the gross value of the fish and lobsters on the docks, the net value of the increase in fishing commerce due exclusively to the improvement and the benefit is estimated to be \$8,000 annually.

83. The lack of sufficient protected anchorage areas in the harbor in addition to causing badly overcrowded conditions to exist in the area of the terminal facilities has resulted in considerable storm damage to the local commercial fishing fleet. Presently, due to the lack of sufficient depths at low tide in the inner area of the two coves, a major percentage of the fishing fleet must moor in exposed locations along the northern edge of the Thorofare where it is exposed to damage or loss from southerly and easterly storms. This situation becomes even more critical due to the fact that the major portion of the local fleet is made up of the smaller lobster boats which have a lesser ability to ride out storms than the larger draggers and carriers. The proposed improvement would provide sufficient anchorage areas in the inner portions of the coves for all of the local and transient fishing craft which spend extended periods in the harbor, thereby substantially reducing storm damage. The benefit, which is general in nature, accruing to the improvement, is estimated to be \$3,800 annually.

84. Stonington Harbor is the mainland supply point for many of the outlying islands south of Stonington. These islands rely solely on Stonington for the transshipment of their mail, food and supplies. During recent years it has become increasingly more difficult to supply these islands and to meet mail and perishable commodity schedules because of tidal delays resulting from lack of sufficient depth of water in the vicinity of the terminal facilities and the protected areas of the harbor. The proposed improvement would eliminate these delays and result in savings to the permanent population and tourists on the outlying islands. These savings, and the benefit accruing to the proposed improvement, are conservatively estimated to be \$1,000 annually.

85. Although Stonington Harbor is primarily a commercial fishing port, there is a small recreational fleet based in the harbor. As a result of existing conditions present in the harbor, the owners of these craft are unable to obtain full use of their boats. It is estimated that at the present time, the owners receive only 75 percent of the possible annual return. The proposed improvement would permit the owners of these boats to realize the remaining 25 percent of this possible annual return. The benefit accruing to the proposed improvement is therefore 25 percent of this return or \$1,800 per year. This benefit is fifty percent local and fifty percent general.

86. The proposed improvement would also provide a sheltered anchorage in the event of a storm for the recreational craft based in and around the harbor. Available information indicates that the lack of a protected anchorage has resulted in at least \$15,000 storm damage to these vessels over the past ten years. The proposed improvement would also result in a more adequate harbor of refuge for the many transient recreational craft which are in the area during the summer season. It is considered that the proposed improvement would reduce these damages by at least 80 percent and the benefit has therefore been taken as \$1,200 annually. The benefits to both the transient fishing and pleasure fleet from use of the harbor for refuge are estimated to amount to \$2,000 annually.

87. Consideration of the various types of commercial fishing craft regularly using Stonington Harbor, the expected increase in fishing commerce in the harbor, and the needs of general navigation in the area results in the conclusion that the considered plan of a 4 acre, 6-foot deep anchorage area in Allen Cove, a 5 acre 6-foot deep anchorage area in Greens Head Cove, and a 2 acre 8-foot deep anchorage area in the vicinity of Staple Point is the most desirable and economic plan to meet the needs of the commercial fishing industry and general navigation now and in the foreseeable future. Because of the preponderance of lobster boats in the local fleet the depth of 6 feet in the two largest anchorages is considered ample. The larger local and transient boats can be moored in the 8-foot deep anchorage in the vicinity of Staple Point nearer to the terminal facilities which they use quite extensively. So that the proposed anchorage in Allen Cove could be used to its fullest extent and in the most efficient manner possible, local interests should be required to build a simple walkway and float type public landing with adequate berths to serve this area. In order to meet the demands of commerce in the harbor and so that the general public might share in the benefits from the proposed improvement, particularly those living on the outlying islands, local interests should also be required to construct a public landing with adequate berths in the central cove area to meet these needs. In addition, so as to insure the most effective and efficient use possible of the proposed anchorages local interests will need to dredge the berths alongside their facilities to adequate depths.

88. The improvement of Stonington Harbor by providing the aforementioned anchorage areas can be accomplished at an estimated project cost of \$220,000. In addition to this amount the construction of the public landings in Allen Cove and in the central cove area and the dredging of berths alongside commercial docks and wharves, to be accomplished by local interests, would cost an estimated \$24,000. Of this amount \$4,000 is for the construction of the public landing in Allen Cove, \$10,000 is for the construction of a public landing in the central cove part of the harbor and \$10,000 is the estimated cost for dredging berths alongside commercial docks and wharves. The total estimated annual carrying charges are \$11,600 including \$2,500 for maintenance of the Federal project and \$450 maintenance for the work to be done by local interests. The evaluated benefits of \$17,800 result in a favorable benefit-cost ratio of 1.5 to 1.

89. In addition to constructing public landings with adequate berths, local interests should be required to hold and save the United States free from all damages resulting from the improvement and furnish all lands, easements and rights-of-way necessary for construction and maintenance. Those benefits that are entirely local in nature are approximately 11 percent of the total benefits accruing to the proposed improvement. The annual charges for work to be accomplished by local interests are also 11 percent of the total annual charges for the entire project. It is therefore considered that no local cash contribution should be required.

90. Officials of the State of Maine and the Town of Stonington have indicated that the requirements of local cooperation would be met.

CONCLUSIONS

91. It is the opinion of the Division Engineer that the provision of anchorage areas of 4 acres 6 feet deep in Allen Cove, 5 acres 6 feet deep in Greens Head Cove and 2 acres 8 feet deep in the vicinity of Staple Point is warranted to provide sorely needed anchorage areas for the local and transient fishing fleets which regularly use the harbor and to provide a more adequate harbor refuge for the small craft in the area. The provision of the proposed improvement will relieve the congestion which presently exists in the area of the terminal facilities and provide a sufficient depth of water in the protected areas of the harbor so as to make practical the construction of public landings by local interests. The proposed improvement is also in the public interest in that it will provide a much safer landing location for the workmen from Crotch Island and persons from the outlying islands who must travel between Stonington and these islands during storm periods. The benefit cost ratio for the proposed improvement is 1.5 to 1, indicating that it is economically justified. It is the opinion of the Division Engineer that local interests should be required to construct a public landing with adequate berths in Allen Cove to serve the proposed anchorage there and a primary public landing with adequate berths in the central cove area.

92. In view of the fact that the annual value of local benefits to be derived from the proposed improvement is equal to the annual value of work which local interests should be required to accomplish, no local cash contribution toward the cost of dredging should be required. The present estimated cost of local work is \$24,000. The entire first cost of the anchorages, which is to be borne by the United States, is estimated to be \$220,000. If the project is authorized, funds for the entire improvement should be appropriated in one fiscal year to assure economical prosecution of the work.

93. Local interests have indicated that the requirements of local cooperation as set forth above will be met, when requested.

RECOMMENDATIONS

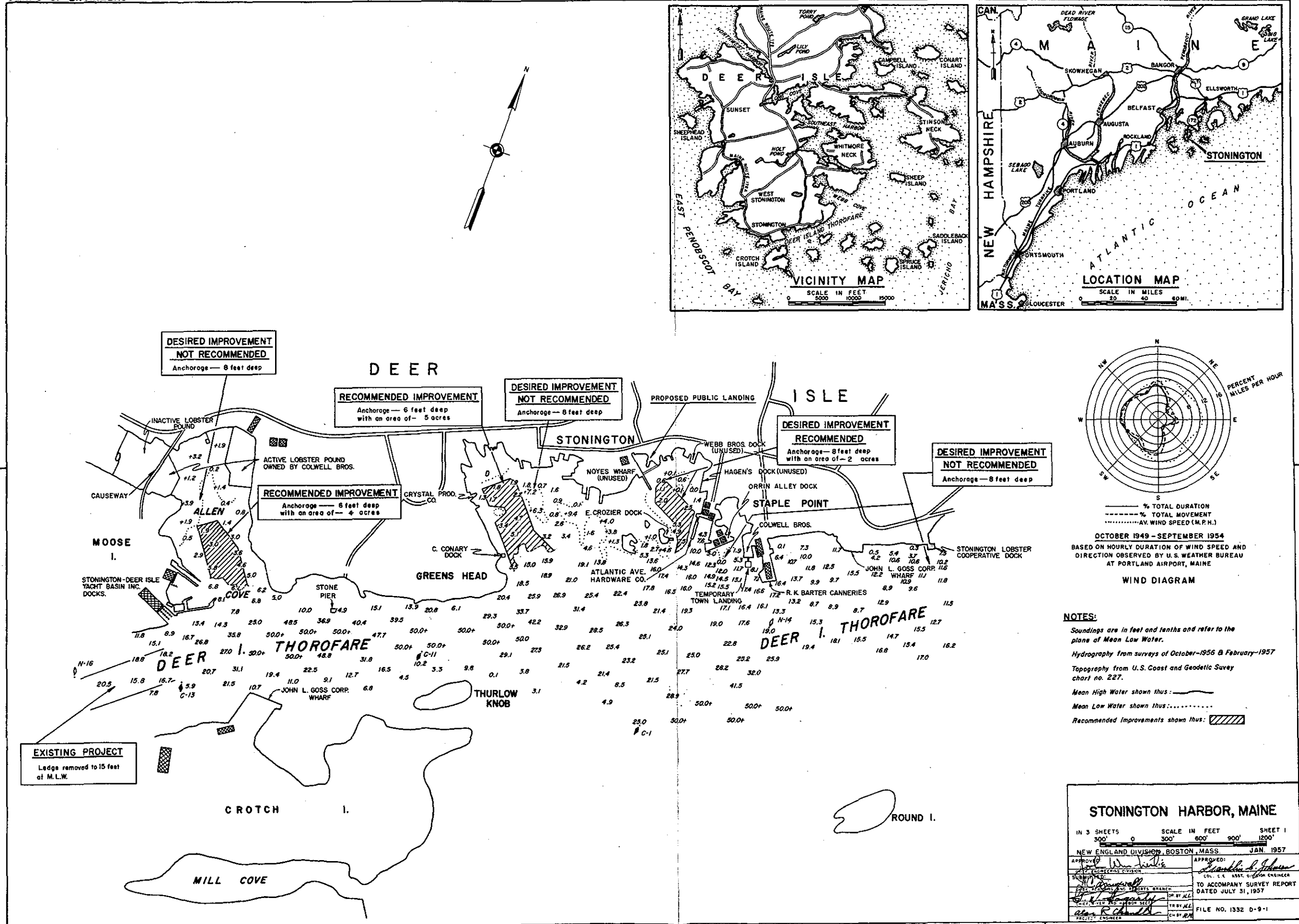
94. It is recommended that a Federal navigation project for the improvement of Stonington Harbor, Maine, be authorized to provide for dredging areas of 4 acres 6 feet deep, 5 acres 6 feet deep and 2 acres 8 feet deep as shown on the inclosed map. The estimated construction cost to be borne by the United States is \$220,000 (April 1957) for new work, with \$2,500 annually for maintenance. This sum is exclusive of the cost of construction of the proposed public landings and the dredging of private berths by local interests.

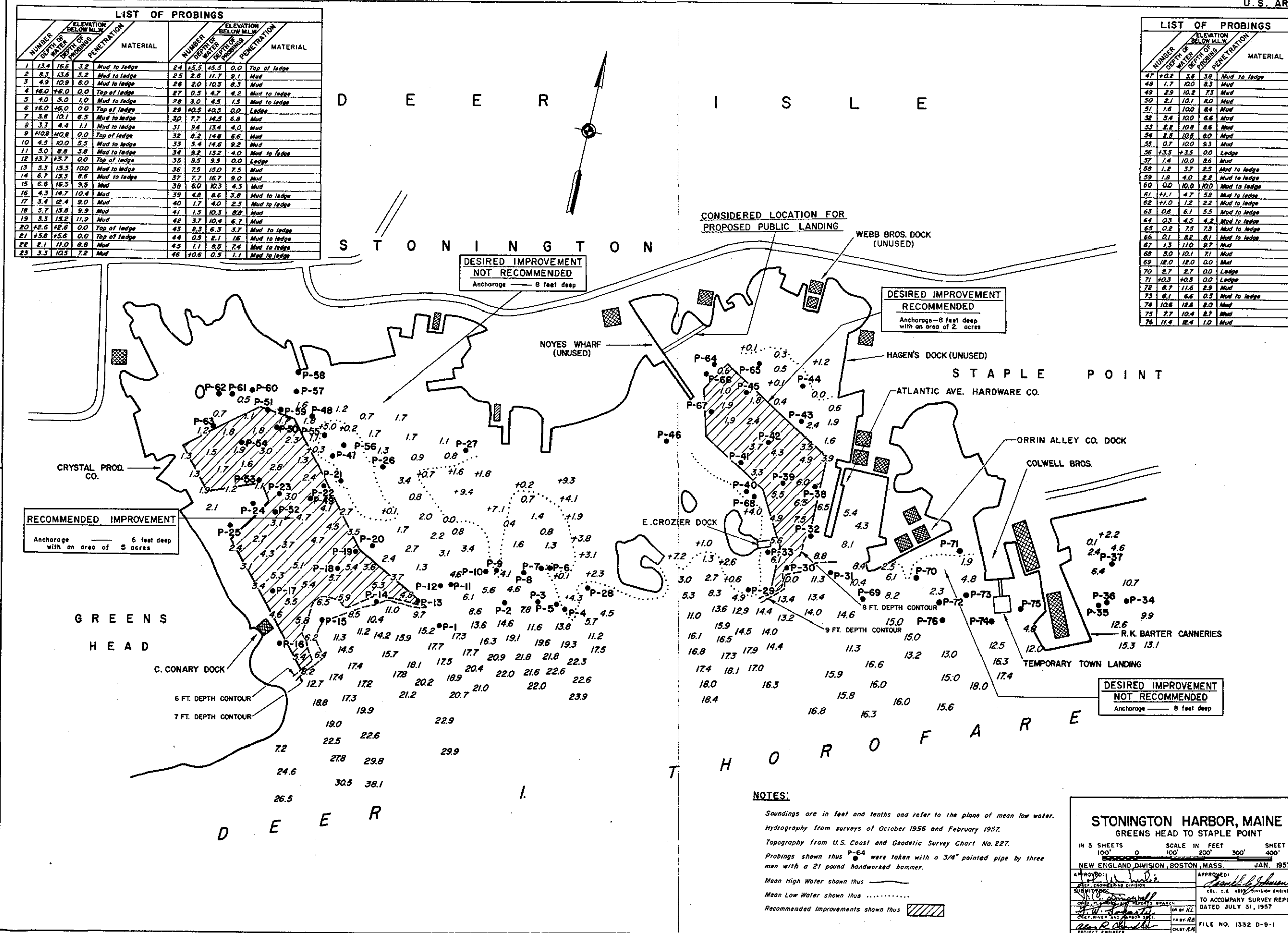
95. This improvement is recommended subject to the conditions that local interests:

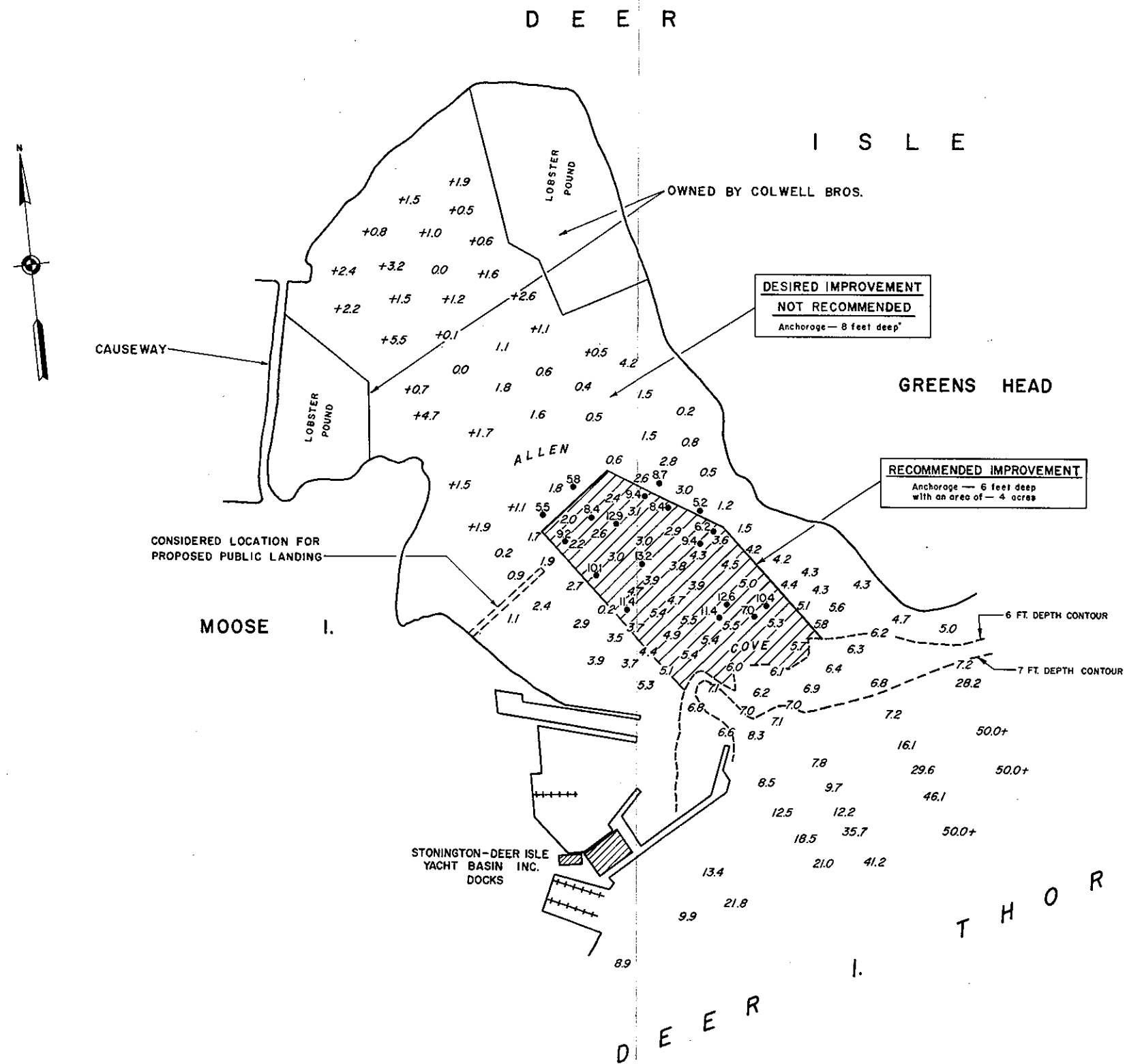
- a.) Hold and save the United States free from damages resulting from the improvement.
- b.) Construct a public landing in Allen Cove with adequate berths.
- c.) Construct a public landing in the central cove area to serve the 8-foot anchorage with adequate berths.
- d.) Furnish without cost to the United States all lands, easements and rights-of-way necessary for construction and maintenance of the improvement.

Incl.
Map of Stonington Harbor
(3 Plates)

ALDEN K. SIBLEY
Brigadier General, U.S. Army
Division Engineer







NOTES:

Soundings are in feet and tenths and refer to the plane of Mean Low Water.

Hydrography from survey of May-July 1936

Topography from U.S. Coast and Geodetic Survey chart no. 227

Probing to rock shown thus 9.4
Figure indicates depth of rock below Mean Low Water.

STONINGTON HARBOR, MAINE
ALLEN COVE

IN 3 SHEETS SCALE IN FEET SHEET 3
100' 0 200' 300' 400'

NEW ENGLAND DIVISION, BOSTON, MASS. JAN. 1937

APPROVED: *[Signature]*
CHIEF OF DIVISION

APPROVED: *[Signature]*
COL. C. E. ASST. DIVISION ENGINEER

TO ACCOMPANY SURVEY REPORT
DATED JULY 31, 1937

FILE NO. 1332 D-9-1

PROJECT ENGINEER: *[Signature]*
CHARTERED: *[Signature]*